Social Capital and Preferences Across Time: A Progress Report of Trustlab Japan

Kohei Kubota[a] Nobuyuki Hanaki[b] Takahiro Hoshino[c] Fabrice Murtin[d]
Masao Ogaki[e] Fumio Ohtake[f] Naoko Okuyama[g]

Abstract

This paper compares measures of social and risk aversion preferences and social capital from online experiments across time. The three waves of a study with online experiments and surveys were conducted by the Trustlab Platform in Japanese, which is internationally comparable, that included for incentivized tasks for the trust game, the public goods game, the dictator game, and a lottery choice. This data set is the only data set which has both experimental and survey measures of trust for the same individuals for two or more points in time. For both measures, trust changes over time for more than 54% of the participants and the magnitudes of the average changes are economically large. For both measures, there is evidence that COVID-19 affected the changes, and that the changes in trust are correlated with the changes between the first two waves in some of the experimental measures of trustworthiness, altruism, reciprocity, and risk tolerance. For changes over longer periods between the first and third waves and between the second and third waves, the change in the experimental measure of trust are correlated with these experimental measures except for risk tolerance. For these results, both models in which social capital such as trust affects social preferences and models in which preference shocks to exogenous outcome based social preferences affect changes in social capital are consistent. These results indicate that such changes in trust over time for individuals are better measured in incentivized experiments rather than surveys especially for changes over longer periods of time.

Keywords: trust game, dictator game, public goods game, lottery choice game
JEL classification: D90, D9

[a] Faculty of Commerce, Chuo University. E-mail: kkubota@tamacc.chuo-u.ac.jp
[b] Institute of Social and Economic Research, Osaka University. E-mail: nobuyuki.hanaki@iser.osaka-u.ac.jp
[c] Faculty of Economics, Keio University. E-mail: hoshino@econ.keio.ac.jp
[d] OECD Centre on Well-Being, Inclusion, Sustainability and Equal Opportunity (WISE) E-mail: Fabrice.MURTIN@oecd.org
[e] Faculty of Economics, Keio University. E-mail: mogaki@econ.keio.ac.jp
[f] Center for Infectious Disease Education and Research, Osaka University E-mail: ohtake@econ.osaka-u.ac.jp
[g] Graduate School of Environment and Information Sciences, Yokohama National University. E-mail: okuyama-naoko-rt@ynu.ac.jp

1. Introduction

Trust, networks, and norms are listed as social capital by Putnum (1993, p.171). Trust has been studied in economics with experimental and survey measures. To the best of our knowledge, the data set we collected is the only data set which has both experimental and survey measures of trust for the same individuals for two or more points in time. The knowledge of how trust and social preferences change over time and how these changes are associated with each other are fundamental in understanding the community mechanism (see Ogaki 2022 for a definition of this mechanism and its importance in the era of crisis).

Chuang and Schechter (2015) surveys the literature and shows that many studies have shown that experimental measures of social and risk preferences and trust change over time for individuals. They have panel data from rural Paraguay of both game-based (some are incentivized and others are hypothetical) and survey measures of social preferences and trust (which they call social preferences while we call social capital). They show that survey measures are more stable than game-based measures of social preferences in their data. They also show that shocks such as theft do not affect game-based measures of social preferences.

2. Data

This paper uses Trustlab Japan project's data sets. In the main OECD Trustlab Project (Murtin et al. 2018), a representative data set (in the sense of representativeness for sex, age, and income) for 1,000 or more individuals is collected in eight countries (France, Germany, Italy, Japan, Korea, Slovenia, UK, and US). Our Trustlab Japan project extends the main projects of Trustlab in two dimensions (more details of the project are explained in Hanaki et al. (2022). First, instead of the cross-sectional data in the main project, we collect panel data for three waves to investigate the dynamics of these behavioral measures. This paper focuses on this dimension and panel data are used. Second, we use the Trustlab platform to conduct online experiments with student groups and other groups to examine how results very across different populations. This dimension will be a focus of a different paper.

We conducted an experimental and survey study for a representative sample (in the sense that the data will be representative for income, age, and sex) for Wave 1. For Waves 2 and 3, we sent invitations to those who participated in Wave 1. Wave 1 was conducted in January--February 2020 (before COVID-19 severely struck Japan) (N=2504); Wave 2, June--July 2020 (N=1467); and Wave 3, September--October 2021 (N=1012).

To the best of our knowledge, this is the only panel data set of individuals that contain both experimental measures of trust from the trust game and survey measures of trust. Both types of measures have been used in the literate.

3. Results

We use three measures of trust: the experimental measure from the trust game (denoted Trust-E in this paper), the survey measure from the OECD question "On a scale from zero to ten, where zero is not at all and ten is completely, in general how much do you trust most people?" (Trust-O), and the Survey measure from Rosenberg's question "Generally speaking, would you say that most e people can be trusted, or that you can't be too careful in dealing with people?" (Trust-R). For the definition of experimental measures of altruism (Altm), cooperation (Cprn), reciprocity (Rcpy), Trustworthiness (Trw1), and Trustworthiness2 (Trw2), the definitions are explained in Hanaki et al. (2022, Table 1). Risk tolerance (Rsts) is defined as the number of the lottery

chosen in the lottery choice experiment explained in Hanaki et al. (2022, p.9).,

Table 1 shows that each of the measures of Tr-E, Tr-O, Tr-R, Trw1, Trw2, Altm, Cprn, and Rsts changes over time for more than 54% of the participants in Waves 1 and 2.[1] The average change of Tr-E in Waves 1 and 2 is -1.28 standard deviation (averaged over the two waves) when it decreased, and 1.28 when it increased.

Table 2 shows that the change in Tr-E from Wave 1 to Wave 2 is positively correlated with the changes in Trw1, Trw2, Altm, Cprn, and Repy at the 1% significance level, and with Rsts and Tr-R at the 5% level. The change in Tr-O is positively correlated with the changes in Rcpy and Tr-R at the 1% significance level, and with Trw1, Trw2, and Cprn at the 5% level. The change in Tr-R is positively correlated with the changes in Trw1 and Trw at the 1% significance level, and with Altm, and Rcpy at the 5% level.

For changes in over a longer period, Table 3 shows that the change in Tr-E from Wave 1 to Wave 3 is positively correlated with the changes in Trw1, Trw2, Altm, Cprn, and Repy at the 1% significance level. The change in Tr-O is positively correlated with the changes in Tr-R at the 1% significance level, and with Rsts at the 5% level.[2]

Table 4 shows that OLS regression results for the explained variable of the change in Tr-E and explanatory variables of a COVID-19 measure, dummy variables for the area (small, medium, large metropolitan areas with the base of the other areas such as towns and villages), and the interaction terms for the COVID-19 measures and the area dummies for Waves 1 and 2. Three COVID-19 measures are tried: the number of infections in the prefecture (denoted Num), the dummy variable for the prefecture in which a state of emergency in response to COVID-19 was declared (denoted E), and the dummy variable for the prefecture listed as a “specific precautions” area during the sample period (denoted S). In Regression (1), Num is used; (2), E or S; and (3), S. None of the explanatory variables is significant at the 5% level in (1); the interaction term of EorS and the large metropolitan area is negatively significant at the 5% level in (2); and S and the interaction term of E and the large metropolitan area are significant at the 5% level, and the interaction term of S and the large metropolitan area is significant at the 1% level.[3]

4. Conclusion

For experimental and survey measures of trust, each of Tr-E, Tr-O, and Tr-R changes over time for more than 54% of the participants and the magnitudes of the average changes are economically large. For these measures, there is evidence that COVID-19 affected the changes, and that the changes in trust are correlated with the changes between the first two waves in some of the experimental measures of trustworthiness, altruism, reciprocity, and risk tolerance. For changes over longer periods between the first and third waves, the change in the experimental measure of trust are correlated with these experimental measures except for risk tolerance. These results indicate that such changes in trust over time for individuals are better measured in incentivized experiments rather than surveys especially for changes over longer periods of time.

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[1] These measures also change for more than 54% of the participants in Waves 1 and 3 and in Waves 2 and 3.

[2] Qualitatively similar evidence as in Table 3 is obtained for Waves 2 and 3.

[3] Qualitatively similar evidence of the effects of COVID-19 is obtained for both Tr-O and Tr-R.

Table 1: Percentage of Individuals in Waves 1 and 2

	Tr–E	Tr–O	Tr–R	Trw1	Trw2	Altm	Cprn	Rcpy	Rsts
Decreased	32.36	36.11	33.98	43.86	33.33	27.00	33.33	30.70	28.85
Unchanged	38.50	27.78	32.04	9.06	37.33	45.52	37.33	36.55	42.01
Increased	29.14	36.11	33.98	47.08	29.34	27.49	29.34	32.75	29.14
N	1026	900	983	1026	1026	1026	1026	1026	1026

Table 2: Panel data correlation analysis of changes in Waves 1 and 2

	Tr–E	Tr–O	Tr–R	Trw1	Trw2	Altm	Cprn	Rcpy	Rsts
Tr–E	1								
Tr–O	0.032	1							
Tr–R	0.063*	0.010**	1						
Trw1	0.356**	0.081*	0.092**	1					
Trw2	0.388**	0.081*	0.093**	0.981**	1				
Altm	0.333**	0.057	0.073*	0.277**	0.308**	1			
Cprn	0.364**	0.074*	0.046	0.279**	0.313**	0.342**	1		
Rcpy	0.147**	0.102**	0.068*	0.208**	0.218**	0.267**	0.325**	1	
Rsts	0.063*	-0.014	0.009	-0.021	-0.020	0.016	-0.005	-0.017	1

$*p \leq .05$
$**p \leq .01$

Table 3: Panel data correlation analysis of changes in Waves 1 and 3

	Tr–E	Tr–O	Tr–R	Trw1	Trw2	Altm	Cprn	Rcpy	Rsts
Tr–E	1								
Tr–O	0.043	1							
Tr–R	-0.007	0.151**	1						
Trw1	0.323**	0.021	-0.054	1					
Trw2	0.349**	0.019	0.041	0.981**	1				
Altm	0.357**	0.080	0.006	0.284**	0.318**	1			
Cprn	0.419**	-0.034	0.054	0.241**	0.257**	0.379**	1		
Rcpy	0.193**	0.041	0.027	0.312**	0.320**	0.237**	0.291**	1	
Rsts	0.074	0.101*	0.028	-0.007	-0.012	-0.033	-0.029	0.018	1

$*p \leq .05$
$**p \leq .01$

Table 4: Change in Tr-E and COVID-19

	(1)	(2)	(3)
Small metropolitan (Small)	-69.26	-49.00	-49.00
Medium metropolitan (Medium)	-34.68	-18.15	-18.15
Large metropolitan (Large)	-32.20	246.6	246.6
Number of infections (Num)	0.105		
Emergency or specific (EorS)		37.69	
Emergency (E)			7.123
Specific (S)			79.86*
Num x Small	0.558		
Num x Medium	2.489		
Num x Large	0.176		
EorS x Small		-29.31	
EorS x Medium		22.13	
EorS x Large		-299.9*	
E x Small			-21.15
E x Medium			42.86
E x Large			-267.3*
S x Small			-14.67
S x Medium			55.34
S x Large			-349.7**

$*p \leq .05$
$**p \leq .01$

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